

ABSTRACT

A solid-state transducer is disclosed. The transducer comprises a semi-conductor substrate forming a support structure and having an opening. A thin-film structure forming a diaphragm responsive to fluid-transmitted acoustic pressure is disposed over the opening. The transducer further includes a plurality of semi-conductor supports and tangential arms extending from the diaphragm edge for connecting the periphery of the diaphragm to the supports. The tangential arms permit the diaphragm to rotate relative to the supports to relieve film stress in the diaphragm. The transducer still further includes a plurality of stop bumps disposed between the substrate and the diaphragm. The stop bumps determine the separation of the diaphragm from the substrate when the transducer is biased.

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